

### Abstract of the Disclosure

A wide-band speech coder and a method thereof and a wide-band speech decoder and a method thereof are provided. The wide-band speech coder includes

5 a speech characteristic classification unit, which stipulates a characteristic of speech corresponding to a current frame statistically using an open-circuit pitch value and a linear prediction coefficient in which a wide-code speech signal to be coded is perceptual weigh filtered, an adaptive codebook retrieving unit, which

10 retrieves a pitch delay value around the open-circuit pitch value, calculates a pitch gain value, generates an adaptive codebook contribution signal corresponding to the retrieved pitch delay value, and outputs a difference between the generated adaptive codebook contribution signal and the perceptual weigh filtered signal as a first fixed codebook target signal, a first fixed codebook retrieving unit, which obtains a first

15 fixed codebook index that can express the first fixed codebook target signal most properly, and a first fixed codebook gain value, generates a first fixed codebook contribution signal corresponding to the retrieved index, and outputs a difference between the first generated fixed codebook contribution signal and the first fixed codebook target signal as a second fixed codebook target signal, a second fixed codebook retrieving unit, which includes at least two second fixed codebooks

20 according to a speech characteristic, selects a second fixed codebook according to the speech characteristic, and retrieves second fixed codebook indices that can express the second fixed codebook target signal most properly, and second fixed codebook gain values, and a parameter multiplexer, which quantizes and multiplexes the speech characteristic information, the pitch delay value, the pitch

25 gain value, the first fixed codebook index, the first fixed codebook gain value, the second fixed codebook indices, and the second fixed codebook gain values, makes them as a bit stream, and transmits the bit stream to an external speech decoding terminal.